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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,750	06/10/2005	Wolfgang Clemens	411000-122	6074

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EXAMINER
HO, HOANG QUAN TRAN

ART UNIT	PAPER NUMBER
2818	

MAIL DATE	DELIVERY MODE
02/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/517,750

Applicant(s)

CLEMENS ET AL.

Examiner

HOANG-QUAN HO

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Applicant's amendment dated January 9, 2008 is acknowledged. Currently, claims 1 – 2, 4 – 7 and 9 are pending in light of the amendment, in which claims 1, 4 – 7 and 9 were amended, claims 3 and 8 were cancelled, no claim was withdrawn, and no claim was added have been entered of record.

Response to Arguments

Applicant's arguments filed January 9, 2008 are acknowledged and are responded as follows.

Applicant's arguments, see pgs. 6 – 13, with respect to the rejection of pending claims have been fully considered and are persuasive. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn. Furthermore, the rejections have been withdrawn. However, upon further consideration, new grounds of rejections are made below.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "underlayer" must

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be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to because the figure submitted with the instant patent application fails to label the figure, such as "Figure 1". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if

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only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

1. Par. 002: "sili15 con" is misconstrued to be "silicon".
2. Par. 009: "materialsbut" is misconstrued to be "materials but".
3. Par. 0011: "sur10 face" is misconstrued to be "surface".
4. Par. 0015: "has 5 been" is misconstrued to be "has been" and " $t > 10^3$ " is misconstrued to be " $\mu > 10^{-3} \text{ cm}^2/\text{Vs}$ " (see claim 7 limitation).
5. Par. 0016: "in 10 organic" is misconstrued to be "in organic".

Appropriate corrections are required.

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Claim Objections

Claims 2 and 4 are objected to because of the following informalities: the preambles of each claims recite a substrate as defined in claim 1 are suggested to be consistent with claim 1's preamble, e.g., "The electronic organic component as defined in claim 1..."

Claim 6 is objected by analogy to claims 2 and 4, such that the preamble of claim 6 is inconsistent.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 – 2, 4, 6, and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites the limitation "a substrate and/or underlayer" in line 3. If the Examiner considered the logic of "and", the Applicant's intention to claim a substrate and an underlayer may not be sufficiently supported by the specification as believed by the Examiner. For instance, the figure from the instant application describes an OFET

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having a substrate, characterized by ref. no. 1. There is no additional underlayer depicted. The specification may not inform one of ordinary skill in the art what is an underlayer if combined with a substrate. For instance, par. 008 of the specification teaches that the substrate or underlayer is provided as a carrier for the organic semiconductor layer. The Examiner believes that it is inappropriate to characterize that there is a secondary layer to be suggested over a substrate, such that an underlayer is provided on top of a substrate in view of instant invention's figure.

Claims 2, 4, 6, and 9 depend from claim 1.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 is presented as cumulative claiming. For instance, claim 4 refers back to claims 1 and 2. 35 U.S.C. 112, second paragraph, does not permit cumulative claiming. See MPEP § 608.01(n).

Claim 9 recites the limitation "an underlayer". This conflicts with claim 1 where it has recited a substrate and/or underlayer. The Examiner does not understand the intention of the Applicant as how claim 9 is claiming.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 – 2, 4 – 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bao et al. (High-Performance Plastic Transistors Fabricated by Printing Techniques), hereinafter as Bao, and further in view of Carey et al. (U.S. Pat. No. 5,817,550), hereinafter as Carey.

Regarding claim 1, fig. 1 of Bao teaches in an electronic organic component, the combination comprising:

a substrate and/or underlayer of the electronic component ("polyester substrate" layer as seen in fig. 1); and

an organic semiconductor functional layer ("organic semiconductor" layer as seen in fig. 1) coated on the substrate or underlayer (the organic semiconductor layer is coated, i.e., provided on the polyester substrate, as seen in fig. 1);

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wherein said substrate or underlayer comprises a biaxially stretched (well-ordered) plastic film (pg. 1299, right column, first sentence of last paragraph; see Note 1 below) such that the orderliness of the plastic film forms the applied functional layer into a well-ordered layer to thereby increase the charge carrier mobility of the coated organic functional layer (pg. 1300, right column, lines 11 – 31).

Note 1: Bao teaches that the polyester substrate, specifically polyethylene terephthalate is commonly used as a substrate for large area displays at pg. 1299, right column, first sentence of last paragraph. However, Bao may not explicitly disclose the commonly used substrate, that such polyester substrate is a biaxially stretched, well-ordered, plastic film. Carey teaches that it is known in the art to provide such polyester substrate as a biaxially stretched, well-ordered, plastic film (col. 3, lines 36 – ⁴¹~~31~~) that are commonly used as a substrate for large area displays (col. 2, lines 28 – ⁴¹~~31~~). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the specifics of the polyester substrate of Carey that is commonly used for large area displays, in order to provide excellent optical quality and low cost (col. 3, lines 36 – 41). It is proper to combine Bao and Carey because they both teach analogous art relating to thin film transistor (TFT) on a plastic substrate.

Regarding claim 2, Bao and Carey teaches a substrate as defined in claim 1, Carey teaches wherein the plastic film is at least partially crystalline (col. 3, lines 36 – 41).

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Regarding claim 4, Bao and Carey teaches a substrate as defined in claims 1 and 2, Carey teaches wherein the plastic film is selected from any one of the group consisting of isotactic polypropylene, polyamide, polyethylene, or polyethylene terephthalate (col. 3, lines 36 – 41).

Regarding claim 5, pg. 1300, right column, lines 11 – 31 and fig. 1 of Bao teaches a method of increasing the charge carrier mobility of a semiconducting layer of organic material ("organic semiconductor" layer as seen in fig. 1),

wherein the semiconducting layer is formed on an underlayer ("polyester substrate" layer as seen in fig. 1) comprising an oriented, biaxially stretched (well-ordered) plastic film (pg. 1299, right column, first sentence of last paragraph; see Note 1 below).

Note 1: Bao teaches that the polyester substrate, specifically polyethylene terephthalate is commonly used as a substrate for large area displays at pg. 1299, right column, first sentence of last paragraph. However, Bao may not explicitly disclose the commonly used substrate, that such polyester substrate is a biaxially stretched, well-ordered, plastic film. Carey teaches that it is known in the art to provide such polyester substrate as a biaxially stretched, well-ordered, plastic film (col. 3, lines 36 – ⁴¹~~31~~) that are commonly used as a substrate for large area displays (col. 2, lines 28 – 31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the specifics of the polyester substrate of

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Carey that is commonly used for large area displays, in order to provide excellent optical quality and low cost (col. 3, lines 36 – 41). It is proper to combine Bao and Carey because they both teach analogous art relating to thin film transistor (TFT) on a plastic substrate.

Regarding claim 6, Bao and Carey teaches the component of any one of claims 1 and 2, fig. 1 of Bao teaches wherein the component further comprises an organic field effect transistor (OFET) (pg. 1299, left column, first paragraph) comprising the substrate or underlayer (as seen in fig. 1) and the semiconductor layer coated on the substrate or underlayer (the organic semiconductor layer is coated, i.e., provided on the polyester substrate, as seen in fig. 1).

Regarding claim 7, fig. 1 of Bao teaches an organic field effect transistor (OFET) (pg. 1299, left column, first paragraph) comprising:

a substrate or an underlayer ("polyester substrate" layer as seen in fig. 1) which comprises a biaxially stretched (well-ordered plastic film) (pg. 1299, right column, first sentence of last paragraph; see Note 1 below); and

above and on that substrate or underlayer is a semiconducting layer of organic material ("organic semiconductor" layer, i.e., provided above and on the polyester substrate, as seen in fig. 1),

the semiconductor layer exhibiting a charge carrier mobility of $\mu > 10^{-3} \text{ cm}^2/\text{Vs}$ (pg. 1300, right column, lines 11 – 31).

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Note 1: Bao teaches that the polyester substrate, specifically polyethylene terephthalate is commonly used as a substrate for large area displays at pg. 1299, right column, first sentence of last paragraph. However, Bao may not explicitly disclose the commonly used substrate, that such polyester substrate is a biaxially stretched, well-ordered, plastic film. Carey teaches that it is known in the art to provide such polyester substrate as a biaxially stretched, well-ordered, plastic film (col. 3, lines 36 – ⁴¹~~31~~) that are commonly used as a substrate for large area displays (col. 2, lines 28 – 31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the invention of Bao with the specifics of the polyester substrate of Carey that is commonly used for large area displays, in order to provide excellent optical quality and low cost (col. 3, lines 36 – 41). It is proper to combine Bao and Carey because they both teach analogous art relating to thin film transistor (TFT) on a plastic substrate.

Regarding claim 9, fig. 1 of Bao teaches an organic field effect transistor (OFET) (pg. 1299, left column, first paragraph) comprising an underlayer ("polyester substrate" layer as seen in fig. 1) and a semiconducting layer ("organic semiconductor" layer as seen in fig. 1) on the underlayer (the organic semiconductor layer is provided on the polyester substrate, as seen in fig. 1) according to claim 4.

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. On Notice of References Cited:

Ref. A: Discloses different variations of arranging an organic TFT on a plastic substrate for which is known in the art.

Ref. C: Is related to Ref. B, for which is applied in the rejections as found above.

Ref. N: Discloses that it is known in the art to provide an organic TFT on a plastic substrate.

Ref. V: One of assignee's white papers during a conference, for which shows that the publication date of the white paper is made available online August 7, 2002.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an

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appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang-Quan Ho whose telephone number is 571-272-8711. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HQH/
Hoang-Quan Ho
Assistant Patent Examiner
January 25, 2008



Andy Hung
Primary Examiner